REMARKS

In the outstanding FINAL Office Action of July 31, 2009, the Examiner rejected claim 50 under 35 USC 102(b) as being anticipated by Arendt.

Claims 51-52 were rejected under 35 USC 103(a) as being unpatentable over Arendt in view of AAPA.

Claims 53-56 were rejected 35 USC 103(a) as being unpatentable over Arendt in view of Cooresmans.

The base reference to Arendt discloses a washing operation and structure in which a horizontal axis drum is rotated to effect a washing action on the clothes load. As stated in the Abstract, the clothes are repeated lifted up, and then fall in a trajectory onto the lower portion of the tub, and are then distributed and pressed against the tub wall, largely without unbalance, as the tub velocity is gradually increased, and are then centrifuged as the velocity is increased further. This description does not discuss rotational oscillation of the tub wall in the sense of clockwise and counter-clockwise rotation, but rather only discusses continuous rotation of the wash tub in a single direction.

The Examiner has stated that applicant's understanding of the teachings of Arendt are mistaken and speculative. The first basis for this is that the Examiner states that oscillating washing machines are notoriously well known. While applicants agree with the statement that oscillating washing machines are well known, particularly in vertical axis machines, such a statement has no bearing on what Arendt teaches. Washing machines that provide one-way rotation are also notoriously well known (see Hoffmann et al., 4,432,111, col. 2, lines 61-62, CIP of the reference relied on by the Examiner).

The second reason the Examiner relies on is the disclosure of the use of an oscillation control unit 47 which the Examiner mistakenly states is "for oscillating the horizontal axis rotary drum." Nowhere does Arendt state that the oscillation control unit 47 oscillates the horizontal axis rotary drum. Instead, the oscillation control unit 47 of Arendt is used to prevent oscillations

of the axis of the drum (and the drum itself) caused by an unbalance of the clothes load in the drum. These oscillations are not the clockwise and counter-clockwise rotations of the drum, but rather are the excursions of the axis of the drum caused by clothes that are unevenly distributed in the drum. As an unbalanced drum rotates, the excursions oscillate to follow the off-center load. This interpretation of the Arendt disclosure is not the subject of speculation by applicants, but rather is based on the actual statements in the Arendt specification. Specifically, in the portion of the specification from column 7 line 56 thorough column 8, line 15 makes it abundantly clear that the "amplitude of oscillations" mentioned by Arendt refers to the extent of the movement of the axis of the drum due to the unbalanced load in the drum.

First, Arendt states that "the device for changing the tub speed is switched on during the changeover from wash speed to spin speed." (Col. 7, lines 14-15). Thus, at this point, the clothes are going to move from a tumbling action to a condition where they are pressed against the side of the wash tub as it is spun at a high speed ("4. for spinning:>100g," Col. 7 line 54). As is well known in the washing art, if a wash load is spun at a high speed while the clothes are in an unbalanced condition, the tub will gyrate or oscillate widely, potentially causing damage to the washer. Arendt states that as the amplitude of oscillation (that is, the degree to which there is unbalance of the load) decreases, the angular velocity of the tub is proportionately increased up to a maximum value. (Col. 7 lines 58-60). It would make no sense for this statement to refer to an angle of clockwise or counter-clockwise rotation as the amplitude of oscillation, for then the statement would say that as the angle of rotation decreases, the speed of rotation increases to a maximum, meaning that the fastest rotational speed would occur when there is little or no angular rotation.

Further, the Arendt specification continues to describe that a resistor 36 is used to measure the load on the motor caused by the unbalance condition. Finally, Arendt states that "the connection between the device for changing the speed 35 and oscillation control unit 47 ensures that the angular velocity in the critical range directly below 1 g is regulated in inverse proportion to the unbalance which is caused by unevenly distributed clothes." (Col. 8, lines 5-9)

Thus, it is clear from the Arendt disclosure that the oscillation control unit 47 is not used to control a clockwise/counter-clockwise rotation of the tub, but rather is used to control a rotational speed (in one direction) of the tub to prevent large excursions or oscillations of the tub axis as the speed of the tub is increased following the wash cycle at the beginning of the spin cycle.

As such, Arendt provides no teachings for varying the angle of rotation of the wash tub in a rotational (clockwise/counter-clockwise) oscillation of the wash tub during a wash cycle. Arendt only discusses controlling an oscillating movement of the axis of rotation of the wash tub as the tub is being accelerated from a washing speed of rotation to a spinning speed of rotation, subsequent to termination of the wash cycle.

Each of the independent claims has been amended to more clearly and distinctly define the presently claimed invention.

Independent claim 50 defines a method of washing items in an automatic washer including the step of oscillating the wash chamber about the central axis alternately through a clockwise angle of rotation and a counter-clockwise angle of rotation. Applicant has pointed out above that Arendt does not teach or suggest such a method, but rather teaches away from such a method by describing only one-way rotation of the wash chamber.

Further, claim 50 defines that the oscillations occur with varying speeds, and defines that the speed of the oscillations is repeatedly varied above and below a base speed periodically during subsequent oscillations in the wash cycle. As mentioned, Arendt does not disclose oscillations at all, let alone oscillations of varying speeds. Additionally, Arendt does not disclose varying the speed of the oscillations repeatedly, nor varying the oscillations above and below a base speed periodically during subsequent oscillations in the wash cycle.

The Examiner has relied on the teachings of Cooremans for disclosing a variation of "oscillations." What Cooremans discloses in paragraph [0064] is that the oscillating forces ("a directional and amplitudical repetition scheme") may occur in a regular periodic manner or may occur in a random, non-periodic irregular manner. Thus, Cooremans discloses changing only the timing of the oscillating forces, not their amplitude, duration, or speed. Cooremans also

discloses changing a direction of the oscillating forces (from up and down to side-to-side or front-to-rear), but again does not disclose changing the amplitude of the oscillating forces, the duration of the oscillating forces or the speed of the oscillating forces. Cooremans does not suggest that there is any difference in effect between regular, periodic oscillations or random, non-periodic irregular oscillations.

Claim 50 further defines that the angle of rotation traversed by the wash chamber is repeatedly varied above and below a base angle of rotation periodically during subsequent oscillations in the wash cycle. Again, Arendt does not disclose rotating the wash chamber through varying angles, but rather continuously rotates the wash chamber in a single direction. Cooremans also does not disclose rotating-type oscillations of varying angles. Neither reference discloses varying the angles of rotation during the wash cycle, nor varying the angles above and below a base angle during subsequent oscillations in the wash cycle.

For each of these reasons, considered individually or in combination, applicants submit that claim 50 is patentably distinguishable over the cited references.

The Examiner stated, without support, that varying the speeds of rotation or the amplitude of the oscillations would produce predictable results of enhancing tumbling of clothes, and thus, of the washing effect. There is no basis for the Examiner's statement that varying the oscillations would enhance the tumbling or enhance the washing effect. If the clothes are tumbling during a wash cycle, with regular (non-varying) periodic oscillations as is known in the art, there is no basis to believe that varying the tumbling action (varying the speed, angle of rotation or length of pauses) would have any effect on the washing action. As noted above, Cooresmans discloses regular and irregular oscillating forces, but does not mention or suggest that the irregular oscillating forces would provide any beneficial effect greater than the regular oscillating forces. However, applicants did provide evidence of an increased effect on the washing performance which is shown in the various graphs of experiments depicted in FIGs. 6-7 and 10 and which are discussed at paragraphs [0038]-[0045] (varying angles of oscillation which reduced damage to the clothes and provided as good or better cleaning action) and [0054]-[0057] (varying speed of oscillations). Based on these experimental results showing the unexpected

improved results due to the varying of the oscillation parameters, applicants submit that the claimed method is not obvious in view of only regular, non-varying oscillations that are known in the art.

Independent claim 51 defines a method of washing items during a wash cycle. This method includes the step of oscillating the wash chamber about the central axis alternately through a clockwise angle of rotation and a counter-clockwise angle of rotation with speed varying oscillations. As discussed above, Arendt does not disclose oscillating the wash chamber with alternating clockwise and counter-clockwise rotations. Further, Arendt does not disclose oscillating the wash chamber with speed varying oscillations. The prior art discloses oscillating the wash chamber, but with only steady speed oscillations. Cooresmans does not disclose speed varying oscillations of a wash chamber.

Claim 51 further defines the method of repeatedly varying the speed of the oscillations above and below a base speed periodically during subsequent oscillations in the wash cycle. Again, Arendt does not disclose oscillations nor varying the speed of the oscillations. The prior art, including Cooresmans, discloses oscillations, but not varying the speed of the oscillations, and certainly not repeatedly varying the speed above and below a base speed periodically during subsequent oscillations.

The experiment results showing the unexpected improvement to the wash performance discussed above are applicable to claim 51 as well.

For each of these reasons, considered separately or in combination, applicants submit that claim 51 and its dependent claim, are patentably distinguishable over the references relied on by the Examiner.

Independent claim 53 defines a method of washing items during a wash cycle. The claim defines oscillating the wash chamber about the central axis alternately through a clockwise angle of rotation and a counter-clockwise angle of rotation with speed varying oscillations. As discussed above, Arendt does not disclose oscillating the wash chamber with alternating clockwise and counter-clockwise rotations. Further, Arendt does not disclose oscillating the wash chamber with speed varying oscillations. The prior art discloses oscillating the wash

chamber, but with only steady speed oscillations. Cooresmans does not disclose varying the speed of any oscillations.

Claim 53 further defines the method of repeatedly varying the speed of rotation of the wash chamber randomly above and below a base speed of rotation periodically during subsequent oscillations in the wash cycle. Again, Arendt does not disclose oscillations nor varying the speed of the oscillations. The prior art, including Cooresmans, discloses oscillations, but not varying the speed of the oscillations, and certainly not repeatedly varying the speed above and below a base speed periodically during subsequent oscillations. None of the references mention varying the speed randomly. Cooresmans discloses only varying the direction or timing of the oscillating forces, either regularly or randomly, but does not suggest that there is any advantage to the random variation approach.

The experiment results showing the unexpected improvement to the wash performance discussed above are applicable to claim 53 as well.

For each of these reasons, considered separately or in combination, applicants submit that claim 53 and its dependent claims, are patentably distinguishable over the references relied on by the Examiner.

In view of the foregoing amendment and remarks, applicants submit that all of the claims of the application are in condition for allowance. Applicants respectfully request the Examiner to reconsider the teachings of the prior art, indicate the claims as allowable and to pass the application to issue.

The Commissioner is hereby authorized to charge any additional fees which may be required for this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 07-2069.

Respectfully submitted,

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